

IN THE CLAIMS:

Please amend the claims to read as follows:

1. (currently amended) A process for producing nanocarbon materials, comprising the following steps:

a. providing an unsupported catalyst with a particle size of  $\leq 10$  nm and a surface area greater than  $50 \text{ m}^2/\text{g}$ ;

b. reacting carbonaceous feedstocks in the presence of the catalyst over a given period of time to produce carbon nanofibers with over 99% purity and a morphological selectivity greater than 95% in yields  $\geq 140 \text{ g carbon/g catalyst}$  with higher reactivity.

2. (previously presented) The process in claim 1, wherein the catalyst is a metal oxide catalyst selected from the metals including iron, nickel, cobalt, lanthanum, gold, silver, molybdenum, iron-nickel, iron-copper and their alloys.

3. (currently amended) The process in claim 1, wherein the catalyst is prepared to specific parameters (size distribution, composition and crystallinity) specified and via a flame synthesis process.

4. (previously presented) The catalyst in claim 1, wherein the catalyst possesses a single crystal morphology.

5. (currently amended) The process in claim 1, wherein the yield of carbon nanomaterial resulted in  $\geq 140 \text{ g carbon per g/catalyst}$ .

6. (currently amended) The process in claim 1, wherein the morphology of the carbon micro structure can be selectively controlled to achieve various desired orientations in selectivities of  $\geq 90\%$ .

7. (currently amended) A process for producing nanocarbon materials, comprising the following steps:

a. providing an unsupported metal oxide catalyst with a particle size of about

$\leq$  10 nm and a surface area greater than 50 m<sup>2</sup>/g;

b. reacting carbonaceous feedstocks in the presence of the catalyst over a given period of time to produce carbon nanofibers with over 99% purity and a morphological selectivity between 95% and 100% with yield  $\geq$  140g carbon/g catalyst.

8. (previously presented) The process in claim 7, wherein the reaction took place at a temperature not exceeding 550 C.

9. (currently amended) The process in claim 7, wherein the purity of carbon nanofibers was  $\geq$  99% after 8 hours reaction time.

10. (previously presented) The process in claim 7, wherein the metal oxide catalyst is selected from a group of metals including iron, nickel, cobalt, lanthanum, gold, silver, molybdenum, iron-nickel, iron-copper and their alloys.

20. (currently amended) The process in claim 1, wherein the nanofibers possess a morphological selectivity between 95% and 100% in yields  $\geq$  140g carbon/g catalyst with higher reactivity.